



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,460	04/03/2001	Sze Cheng Yang	4875	1330

7590 05/21/2004

Samuels, Gauthier & Stevens LLP
225 Franklin Street, Suite 3300
Boston, MA 02110

EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT	PAPER NUMBER
----------	--------------

1751

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,460

Applicant(s)

YANG ET AL.

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/29/01</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

- Acknowledge the claim of the benefit of provisional application 60/194,297 filed April 03, 2000 under USC §119(e).
- The information disclosure statement (IDS) submitted on 06/29/2001 was filed after the mailing date of the application on 03/04/2001. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.
- Although the specification has been checked, it has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Oath/Declaration

- The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claims 1, 4 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the phrase "*polypyrrole*" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). The claim recites "*a conducting polymer selected from*" a markush group in Line-3 and further recites a "*polypyrrole ratio of between about 0.5 to 4.5*" in Line-6, and it is not clear about this ratio value when "a conductive polymer" chosen would be other than a polypyrrole in the molecular complex.

The examiner construes the conducting polymer to be a "*polypyrrole*" for the purposes of the examination. Clarification and necessary corrections are needed.

Regarding claims 4 and 8, the phrase "*conducting polymer*" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). The claim recites "*a conducting polymer selected from... poly (vinylmethyl ether-co-maleic acid)*" in Lines 1-3 and further recites a "*conducting polymer is polypyrrole*" Line-3, and it is not clear what the applicant is really trying to claim with these limitations. The facts in each case must be evaluated to determine whether or not the multiple inclusion of one or more elements in a claim gives rise to indefiniteness in that

claim. On the other hand, where a claim directed to a device can be read to include the same element twice, the claim may be indefinite. Ex parte Kristensen, 10 USPQ2d 1701 (Bd. Pat. App. & Inter. 1989). (MPEP 2173.05(o)).

The examiner construes the molecular complex consisting of a "template" of either PAA or PVMEMA and the conducting polymer of polypyrrole for the purposes of the examination. Clarification and necessary corrections are needed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by either Liu et al (US Patent 5,489,400) or Yang et al (WO 99/22380).

- Liu et al disclose molecular complexes comprising of a conductive polymer such as polyaniline, polypyrrole, polythiophene and poly(phenylene sulfide) non-covalently bonded to the templates of anionic functional group containing polyelectrolytes such

as poly(acrylic acid) or its salt or poly(styrene sulfonic acid) or its salt, and the method of making them. Liu et al further disclose that the template guided formation of the complex of single strands of the component polymers in 1:1 ratio, and other mixing ratios and multiple types of components could be made, and this would meet the limitation of polypyrrole ratio in the complex (Abstract, Col-3, Lines: 26-48; Col-7, Line: 38- Col-8, Line-11; Claims: 1-3 and 8-10). This would meet the limitations of claims 1-4. Liu et al further disclose the composition and making of PAN(I)- polyelectrolyte molecular complexes by varying the component ratios and the composition of the polyelectrolytes, where in the pH of the initial diluted mixture was 2.169 and the further purification by dialysis was done under neutral pH conditions and these would meet the limitations of the instant claims 5-7 (Col-8, Example-3, Lines: 59-61; Col-19, Lines: 35-40). All the limitations of the instant claims are met.

The reference is anticipatory.

- Yang et al disclose a conductive polymeric complex comprising a template of anionic functional group containing polyelectrolytes such as PAA and a conjugated conductive polymer including polypyrrole, the conductive polymer being ionically bound to the polyelectrolyte, and the complex being formed by template guided polymerization, the same method being used by the applicants in making the molecular complex, and the Yang's ratios of the components would meet the limitation polypyrrole ratio in claim-1, when the conducting polymer in the complex be polypyrrole (Abstract, Page-2, Line32 to Page-3, Line-9; Page-, Line-35 to Page5, Line-9). All the limitations of instant claims 1-4 are met. Yang et al further disclose

forming PAN(I)-PAA complex by the adsorption of aniline on PAA starting from 0.025 moles of PAA and 0.025 moles of aniline in methanol-water solvent, wherein the pH of the mixture was 5.0, and these would meet the limitations of the instant claims 5-7. All the limitations of the instant claims are met.

The reference is anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Liu et al (US Patent 5,489,400) Yang et al (WO 99/22380).

The disclosure by Liu et al and Yang et al in Rejection-1 under USC 102(b) are set forth individually as above.

Both, Liu et al and Yang et al individually provide working examples on PAN(I)-Polyelectrolyte complexes, but not for polypyrrole-polyelectrolyte complexes, although suggestive of such molecular complexes for the polypyrrole and other conjugated conductive polymers.

It would have been obvious to one of ordinary skill in the art to make modifications to the compositions of either Liu et al or Yang et al, by optionally choosing polypyrrole or other conductive conjugated polymers in forming the molecular complexes, to tailor the complexes for the specific applications, and further vary the pH as desired by the choice of process design conditions based on the composition, because both the teachings by Liu et al and yang et al are in the analogous art, and both of them individually teach these aspects and suggestive of such modifications, and with the expectation of reasonable success in arriving at the limitations of the instant claims by the applicants.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims rejected under the judicially created doctrine of double patenting over claim of U. S. Patent Nos. 6,656,388 and 6,150,032 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent/s and is covered by the patent/s since the patent/s and the application are claiming common subject matter, as follows: Claims 1-4 of the instant application pertain to a molecular complex comprising a conductive polypyrrole/polythiophene/poly(phynylene sulfide) bonded to a template of a polyelectrolyte containing surface functional groups such as carboxyls and conflict with claims 1 and 3 of US Patent 6,656,388 pertaining to an electrically conductive polymeric complex and Claim-1 of US Patent 6,150,032 pertaining to a double stranded molecular complex. Although, the limitations of the instant claims and the claims of the cited US Patents appears to be not identical, both the compositions of the instant claimed molecular complex and patented complexes consist of identical components in nearly identical ratios, and the complexes being made by the same method by adsorbing the conductive polymer over a template of a polyelectrolyte and bonded non-covalently, and these are not patentably distinct from each other, even though the instant claim recites a limitation of ratio of polypyrrole in the molecular complex that would be obvious in view of the stability of the complex by the disclosures in the cited patents.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Conclusion

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Angelopoulos et al (US Patent 6,103,145).
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kmv
May11, 2004.


Mark Kopec
Primary Examiner